

Work Order ID 139713***139713***

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December 02, 2015 2:13:44 PM

Item ID: D412-786-013

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Hardpoint Installation

Start Date: 12/2/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 12/30/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: SH Date: 20151202

Tooling:

Date:

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D412-786-1

BCM

D412

MC 15-12-07

100

Document Control

0.00

9-89***100***

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels per PPP D412-786-013 chg001

15-12-11

110

Pick Kit

0.00

110

Packaging

Memo

0.00

Packaging

9-89DEC 07 201528
9-89

120

QC4- 100% Inspect kits for completeness

0.00

120

QC

Memo

0.00

Quality Control

15-12-11

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

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Item ID: D412-786-013

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N900040100Setup Start ***NS1***

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Item Name: Fwd Hardpoint Installation

Start Date: 12/2/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 12/30/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Packaging	0.00							
130									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D412-786-013								
	Location: <u>0 FG124</u>								
	PPP Rev: _____								
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00							
Quality Control									

1x DAS 28 9-89 DEC 11 2015

MLJ DEC 11 2015

MLJ DEC 11 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

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Work Order ID: 139713

139713

Parent Item: D412-786-013

D412-786-013

Parent Item Name: Fwd Hardpoint Installation

Start Date: 12/2/2015

Required Date: 12/30/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A NEW ISSUE 12-04-27 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3870-041 Manufactured No

D3870-041

Hardpoint, Fwd LH

RB

Location

Loc Qty

Loc Code

ST056

1

111676

1

Each

1.0000

1

DAS
6
9-89

DAS
28
9-89

D3870-042 Manufactured No

D3870-042

Hardpoint, Fwd RH

RB

Location

Loc Qty

Loc Code

ST053

1

111677

1

Each

7.0000

1

DAS
6
9-89

DAS
28
9-89

D3870-5 Manufactured No

D3870-5

Mount, Fwd Upper

RB

Location

Loc Qty

Loc Code

ST056

7

121992

7

Each

6.0000

1

DAS
6
9-89

DAS
28
9-89

D3871-1 Manufactured No

D3871-1

Doubler

RB

Location

Loc Qty

Loc Code

ST056

6

111907

6

DAS
6
9-89

DAS
28
9-89

Picklist Print

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Work Order ID: 139713

139713

Parent Item: D412-786-013

D412-786-013

Parent Item Name: Fwd Hardpoint Installation

Start Date: 12/2/2015

Required Date: 12/30/2015

Start Qty: 1.00

Required Qty: 1.00

D3871-2

Manufactured No

Each 6.0000 1

D3871-2

Doubler

**

Location

Loc Qty

Loc Code

ST063

6

111908

6

Each

0.0000

10

**

MS21042L3

Purchased

No

MS21042L3

Nut

MS27039-1-11

Purchased

No

MS27039-1-11

Screw

Each

243.0000

8

**

Location

Loc Qty

Loc Code

CA

178

124326

178

GA

25

125654

13

9662

12

ST285

40

m131317

40

Each

145.0000

1

**

MS27039-1-12

Purchased

No

MS27039-1-12

Screw

Location

Loc Qty

Loc Code

cck007a

100

m133483

100

ST285

45

m133031

45

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Shop Packet Print

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Picklist Print

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Work Order ID: 139713

139713

Parent Item: D412-786-013

D412-786-013

Parent Item Name: Fwd Hardpoint Installation

Start Date: 12/2/2015

Required Date: 12/30/2015

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-14

Purchased

No

Each

794.0000

1

MS27039-1-14

Screw

Location

Loc Qty

Loc Code

cck007a

500

124326

500

GA

94

120449

94

ST280

196

124326

196

ST285

4

m130388

4

Each

1,897.000

10

NAS1149D0332J

Purchased

No

NAS1149D0332.J

Washer

Location

Loc Qty

Loc Code

CA

14

m129682

14

FP001

72

m129682

72

GA

357

m132677

357

ST264

1454

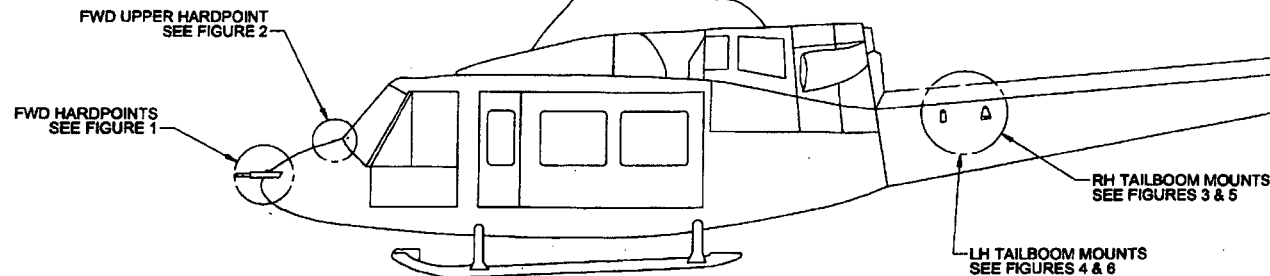
m133498

1454

DAS
28
9-89

DEC 07 2015
DAS
28
9-89

REFERENCE ONLY



D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3866-041	TAILBOOM MOUNT
		2			D3866-043	TAILBOOM MOUNT
	1				D3870-041	FWD LH HARDPOINT
	1				D3870-042	FWD RH HARDPOINT
	1				D3870-5	FWD UPPER HARDPOINT
	1				D3871-1	DOUBLER
	1				D3871-2	DOUBLER
			1		D4950-041	TAILBOOM MOUNT
			2		D4950-043	TAILBOOM MOUNT
	10	12		12	MS21042L3	NUT
	8	12		12	MS27039-1-11	SCREW
	1				MS27039-1-12	SCREW
	1				MS27039-1-14	SCREW
	10	24		24	NAS1149D0332J	WASHER

INSTALLATION	WEIGHT	LONGITUDINAL		LATERAL	
		ARM	MOMENT	ARM	MOMENT
D412-786-011 HARDPOINT KIT	0.58 LBS 0.26 KG	164.87 IN 4.18 M	95.51 IN-LB 1.09 KG-M	-1.25 IN -0.03 M	-0.73 IN-LB -0.008 KG-M
D412-786-013 FWD HARDPOINT KIT	0.22 LBS 0.10 KG	-13.55 IN -0.34 M	-2.98 IN-LB -0.03 KG-M	2.36 IN 0.06 M	0.52 IN-LB 0.006 KG-M
D412-786-015 TAILBOOM MOUNT KIT	0.36 LBS 0.16 KG	273.58 IN 6.95 M	98.49 IN-LB 1.11 KG-M	-3.47 IN -0.08 M	-1.25 IN-LB -0.01 KG-M
D412-786-021 HARDPOINT KIT	0.64 LBS 0.29 KG	164.87 IN 4.18 M	105.39 IN-LB 1.21 KG-M	-1.25 IN -0.03 M	-0.08 IN-LB -0.01 KG-M
D412-786-025 TAILBOOM MOUNT KIT	0.42 LBS 0.19 KG	273.58 IN 6.95 M	114.90 IN-LB 1.32 KG-M	-3.47 IN -0.08 M	-1.46 IN-LB -0.02 KG-M

NOTES:

- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-695-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
- 3) TOUCH UP DRILLED HOLES WITH ALODINE PER THE AIRCRAFT MAINTENANCE MANUAL
- 4) TORQUE FASTENERS AS FOLLOWS: 10-32: 20-25 IN-LBS
- 5) PRIME AND PAINT HARDPOINTS TO MATCH AIRCRAFT PAINT SCHEME PER AIRCRAFT MAINTENANCE MANUAL

C	MODIFY D3870-5 INSTALLATION INSTRUCTION, ADD TO NOTE 2, SH 3 AND CLARIFY/CORRECT VIEW C-C (ZN A8-3, C3-3)	DB	14.04.28
B	ADD -021/-025 KITS, SHEETS 6 & 7	DB	13.10.17
A	NEW ISSUE	DB	09.01.14
REV	DESCRIPTION	BY	DATE
DESIGN	DB		
DRAWN	DB		
CHECKED	<i>[Signature]</i>		
MFG. APPR.	N/A		
APPROVED	<i>[Signature]</i>		
DE APPR.	<i>[Signature]</i>		
DATE	14.04.28		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D412-786-1 REV. C SHEET 1 OF 7 HARDPOINT KIT INSTALL SCALE NTS COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			